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1877. Sept. 19		966, 1204		
20			966*, 1129*	
21			„	
22		74 Aquarii, 1165	„	
23		„	„	
24		„	„	
25		„	„	
26		„	„	
27	918, 1129	935, 1156	70 Aquarii, 1079	966*, 1129*
28		70 Aquarii, 1079		
29		„		
30		„		
Oct. 1		„		
2		„		
3		„	74 Aquarii (conjunction)	
4		„	„	
5		„	„	
6		„		
7		„		
8		„		
9		„		
10		70 Aquarii, 1047, 1079		
11		„	926*, 1007*	
12		„	„	
13		„		
14		70 Aquarii, 1065		
15		910, 1047	70 Aquarii, 1122	
16		70 Aquarii, 1122	946*, 70 Aquarii*, 1020*	
17		70 Aquarii, 1120	977*, 946*, 1020*, 1017*	
18		„	994*, 933*, 1017*	

Royal Observatory, Greenwich,
1877, *January* 13.

On O. M. Mitchel's Observations at Cincinnati.

By Cleveland Abbe, Esq.

In a note to his recently-published "Reference Catalogue" Mr. Knobel calls attention to the fact that copies of Mitchel's *Sidereal Messenger* are very rare in England, and to the Supplementary note in *Nature* (November 9, page 49). I would add,

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that complete sets of this interesting periodical are almost equally as rare in America.* Rarer still is to be found nowadays the excellent text-book for schools and hand-book for amateurs, published in 1849, in Cincinnati, New York, as "Mitchel's edition of Burritt's *Geography of the Heavens*." In this book Mitchel published numerous notes based on the work done during 1845–48 at his Observatory, and I have thought it may interest members of the Astronomical Society if I copy from it for their use the record of double star positions observed at Cincinnati. These few figures, however, convey but a faint idea of Mitchel's activity during those years: in my annual reports, 1868, 1869, and 1870, I have given a nearly full list of his publications, and expressed the hope that I should be able to prepare for publication such of his observations (especially the very extensive series of zones of faint stars) as gave promise of being useful; and although this is now become a very difficult matter, owing to the death of Mitchel and his faithful assistant Twitchel, yet possibly my successor may be induced to undertake it.

In the accompanying table reference is given in the last column to the page of Mitchel's edition of Burritt. I have also included the name of Nebulæ, etc., concerning which Mitchel gives some notes as to their appearance at Cincinnati; these notes are generally somewhat general and unsatisfactory in their nature, but I shall be happy to communicate them in full if desired. I fear lest an occasional typographical mistake may have crept into the measurements here given; but possibly these may at some future time be rectified if ever the original observer's note-book can be found.†

Washington,
1876, *December* 15.

Observations of Double Stars, by O. M. Mitchel, made between May 1845 *and May* 1848, *with the* 12-*inch Refractor, at Cincinnati.*

(*From Mitchel's "Geography of the Heavens," New York*, 1849.)

No.	Constellation and Object.	R.A.	Dec.	Position-Angle.	Distance.	Epoch.	Page.
		h m	° ′	° ′	″		
1	38 Piscium	0 9	+ 7 59	235 59	4·646	1847·65	54
2	55 "	0 31	+20 33	191 52	7·014	1847·65	54
3	τ Cassiopeiæ	0 39	+50 34	146 25	2·24	1847·60	49
4	η "	0 39	+56 57	101 20	8·59	1847·60	49
5	65 Piscium	0 41	+26 50	297 32	...	1847·65	54

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* The Astor Library, in New York City, possesses a few of the last published numbers, which are, I believe, wanting in all the other sets that I have hitherto seen.

† The names of Nebulæ are omitted from the Table as printed, and the Double Stars have been rearranged in order of Right Ascension.—Ed.

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No.	Constellation and Object.	R.A. h m	Dec. ° ′	Position-Angle. ° ′	Distance. ″	Epoch.	Page.
6	36 Andromedæ	0 46	+22	330 14	1·050	1847·70	39
7	ψ Cassiopeiæ (A & B)	1 14	+67 14	102 37	30·394	1847·60	49
8	„ „ (B & C)	„ „	„ „	253 7	32·856	1847·60	50
9	γ Arietis	1 44	+18 30	175 37	9·184	1847·65	60
10	α Piscium	1 53	+ 1 59	330 3	...	1847·65	55
11	γ Andromedæ	1 54	+41	110 0	0·40	1846·60	40
12	γ Virginis	12 33	− 0 34	357 28	3·09	1847·60	116
13	Comæ Ber. (A & B)	12 45	+22 7	40 4	1·316	1847·57	135
14	„ (A & C)	„ „	„ „	125 31	...	1847·57	135
15	84 Virginis	13 35	+ 4 21	231 5	3·48	1847·06	118
16	π Boötis	14 33	+17 6	96 57	8·28	1847·60	128
17	ζ „	14 33	+14 25	128 24	6·924	1847·62	128
18	ε „	14 38	+27 45	320 50	2·568	1846·66	128
19	ξ „	14 44	+19 46	317 44	6·482	1847·63	129
20	39 „	14 44	+49 22	37 0	4·00	1847·60	129
21	44 „	14 58	+48 16	238 20	3·738	1847·62	129
22	β Scorpii	15 56	−19 21	26 22	13·68	1846·50	147
23	51 ξ Libræ (A & B)	15 58	−10 55	24 52	0·97	1846·48	143
24	„ „ (A & C)	„ „	„ „	74 42	7·16	1846·48	143
25	ν Scorpii (A & B)	16 2	−19 2	37 57	1·2	1846·(?)	146
26	„ „ (½ AB & C)	„ „	„ „	338 29	40·0	1846·(?)	146
27	σ Scorpii	16 11	−25 12	271 5	22·34	1847·60	147
28	α „	16 19	−26 4	90 0	2·5	1845·5(?)	146
29	XIV Piazzi 88	16 20	− 7 45	304 14	5·292	1847·70	186
30	λ Ophiuchi	16 22	+ 2 20	3 42	1·42	1847·65	183
31	ζ Herculis	16 35	+31 53	109 12	1·078	1847·70	163
32	η „	16 37	+39 13	...	inseparable	...	163
33		16 54	+ 8 41	146 57	0·826	1847·70	185
34	μ Draconis	17 2	+54 41	190 57	2·90	1847·70	133
35	36	17 5	−26 21	215 49	4·27	1847·62	185
36	α Herculis	17 7	+14 34	117 36	4·92	1847·62	162
37		17 17	+15 45	62 33	3·654	1847·60	185
38	Draconis	17 25	+50 59	266 20	3·03	1847·70	133
39	τ Ophiuchi	17 54	− 8 10	229 24	0·779	1846·51	183
40	*p* = 70 Ophiuchi	17 57	+ 2 32	120 45	5·53	1847·55	183
41	73	18 1	+ 3 58	253 0	1·274	1847·55	185
42	ε Lyræ (A & B)	18 39	39 30	20 25	2·46	1847·60	172
43	5 „ (C & D)	„ „	„ „	149 10	2·55	1847·60	172

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No.	Constellation and Object.	R.A.	Dec.	Position-Angle.	Distance.	Epoch.	Page.
		h m	° ′	° ′	″		
44	Aquilæ (B & C)	18 54	− 0 55	76 0	1·576	1847·60	176
45	Aquilæ	18 57	+ 6 18	152 28	9·492	1847·65	176
46	23 Aquilæ	19 10	+ 0 48	12 9	3·57	1847·67	177
47	Aquilæ (A & B)	19 28	−10 46	319 4	2·54	1847·60	176
48	„ (A & C)	„ „	„ „	169 17	...	...	176
49	Aquilæ	19 37	+10 23	276 36	4·33	1847·72	177
50	π Aquilæ	19 41	+11 25	123 9	1·20	1847·66	176
51	α^2 Capricorni	20 9	−13 2	144 11	6·36	1846·67	195
52	ρ „	20 19	−18 20	176 56	3·094	1847·70	195
53	XX Piazzi, 376 Equulei	20 47	+ 3 55	287 45	1·874	1847·65	189
54	ϵ Equulei (A & B)	20 51	+ 3 41	288 6	0·574	1847·60	189
55	„ „ (A & C)	„ „	„ „	76 25	11·08	1847·60	189
56	λ „	20 54	+ 6 33	227 42	1·9	1847·60	189
57	12 Aquarii	20 55	− 6 27	191 30	8·23	1847·63	192
58	61 Cygni	20 59	+37 58	101 2	17·3	1847·50	167
59	29 Aquarii	21 53	−17 43	242 8	4·466	1847·70	192
60	41 „	22 5	−21 51	120 22	4·326	1847·70	193
61	Pegasi	22 6	+16 24	331 29	8·03	1847·65	188
62	ζ Aquarii	22 20	− 0 50	346 42	3·948	1847·70	193
63	37 Pegasi	22 21	+ 3 37	121 46	0·98	1847·70	188
64	Aquarii	22 34	− 9 8	314 35	1·82	1847·70	193
65	Piscium	23 37	− 0 37	227 33	2·702	1847·65	35

On the Space-penetrating Power of Mr. Lassell's 2-foot and 4-foot Reflectors. By W. Lassell, Esq.

In the *Monthly Notices* for December is a note by M. Otto Struve, in which, quoting from a previously written paper, he says, "The space-penetrating power of Mr. Lassell's new (4-feet) instrument can hardly be estimated superior to that of ours (the Pulkova 15-inch) Refractor." There appears to me to be something so erroneous in this conclusion, that although very averse to controversy, and especially to enter the lists with my very distinguished friend, M. Struve, I crave permission to state my greatly differing opinion, and the grounds on which I have formed it.

To begin with a comparison of the powers of my 2-foot Equatoreal with those of the Pulkova telescope. About the year 1847 and later, I was engaged, as opportunities offered, in a diligent scrutiny with the view of verifying the fainter Satellites